Jon Pompa

Water, Energy, and Waste:

Integrating Themes of Sustainability

Course Instructor: Shakira Castronovo

Midterm Lesson Plan 2012

Water Conservation Lesson

Based on website… http://ww.wateruseitwisely.com/100-ways-to-conserve/index.php

Grade: 3rd

Time: 45 Minutes

Standards: NYC Science Scope and Sequence

Standard 1: Analysis, Inquiry, and Design. Students will learn to pose questions, seek answers, and develop solutions.

Standard 6: Patterns of Change. Students will learn to identify patterns of change necessary for making predictions about future behavior and conditions.

Students will:

Observe, analyze, and report observations of objects and events (Standard xiii)

Observe, identify, and communicate cause-and-effect relationships. (Standard xv)

Communicate procedures and conclusions through oral and written presentations (Standard xxiii)

Objectives:

In this lesson, students will learn different ways to save water, will practice one of these ways at home, and will write about their results, explaining why this approach was important and helpful to water conservation.

Students will understand the importance of conserving water, as well as different ways they can do this, first by composing their own list, then by comparing it to a separate standard list with their group. After this, students will practice implementing one of the ways at home, and finally they will write about one of these ways and how it helps make a difference. This lesson will fit into the curriculum during our unit on natural resources and how we can help sustain them.

Method of instruction: Group work, composing a list, comparing ideas to those on their list, discussing how to implement their ideas, practicing an idea for conserving water, and writing about their findings.

Pre-instruction:

Teacher conducts a brief discussion about daily uses of water, such as washing things, and the need to save water. Why is water conservation important? How is water wasted? Teacher discusses beforehand how when washing anything, from fruits to clothing to your face, if you let the water run, then you are wasting a lot of water. How can we prevent this from happening? Teacher also reminds students of things that will need water later on, such as plants. Discussion includes the idea that instead of wasting excess water, it could instead be used to help these other things that will need water later on.

Active Engagement (Part 1):

Working in a group of 4 – 5 students, they are asked to come up with a written list of ways that they can save water. One student in each group is assigned to be THE RECORDER.

Students are given the following prompts on a sheet as topics to focus in on…

1. When washing dishes…

2. When taking a bath or shower…

3. When washing clothes in a machine…

4. When brushing your teeth or washing your hair…

5. When washing fruits or vegetables…

6. When giving water to plants…

For each of these prompts, students are asked to write how water is often wasted, and then how this wasting can be changed.

(Time: 10 – 15 minutes)

Part 2: Checking the list. A second student is given the task of being THE CHECKER. This student’s job is to read over the list that the group has put together, so that if anything is unclear or incorrect, the students may fix it before moving on.

(Time: 5 minutes)

Part 3: A third student is given the job of being the FACTS READER. The group is given a list to read over together and discuss. The Facts Reader will read this list out loud to the group.

List of ways to recycle or save water:

1. When washing dishes by hand, don't let the water run while rinsing. Fill one sink with wash water and the other with rinse water.

2. Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.

3. Wash your fruits and vegetables in a pan of water instead of running water from the tap.

4. Collect the water you use for rinsing fruits and vegetables, then reuse it to water houseplants.

5. Collect water from your roof to water your garden.

6. Keep a bucket in the shower to catch water as it warms up or runs. Use this water to flush toilets or water plants.

7.Water only when necessary. More plants die from over-watering than from under-watering.

8. Shorten your shower by a minute or two. Time it to be sure.

9. When running a bath, plug the tub before turning the water on, then adjust the temperature as the tub fills up.

10. Turn off the water while brushing your teeth.

11. Turn off the water while washing your hair.

(Time for Part 3 and 4 combined: 10 minutes)

Part 4: The fourth student in each group is given the job of THE MATCHER. Along with the other students in the group, he or she discusses the different ways on this list and tries to match them to some of the ways that they came up with on their own list. If there are five students in the group, then the final two students take turns being The Matcher and recording ways that the group list matches or is similar to this fact list.

Part 5: Individual Work. Students are asked to pick two of the ways on either the list that was given to them or on their own list (if it is their own ideas, then these ideas must be shared with the teacher first, for approval), that they would like to try to work on at home over the next two days (this can be done over a weekend, with students being asked to do it only one of the days.)

When students return to school, they are asked to either write about either one thing that they did, how this helps save water, and what the results were, or…

If they were unable to practice one of these methods over the weekend, students should pick two of the ways from the list and write about what these ways are, how they can make sure they are doing them, and why they are important.

Each written assignment should be two paragraphs long.

If students choose the first one, and were able to self-monitor their water use over the weekend, then the first paragraph should be all about what they did, and the second paragraph should explain why this is important for the conservation of water. If students chose the second assignment, and wrote about two different ways of saving water, then each paragraph should be about a different way and should include not only an explanation of what the way is, but also an explanation of why this will help save water.

(Time: 15 minutes)

Whole class sharing and reflection: Students will be asked to read one of their paragraphs and to explain why the method they have chosen to write about is important. The paragraph that each student reads will be his or her choice, and following the reading, students will be asked to reflect upon what they learned, how the assignment went for them, and how they might improve or continue to work on this in the future.

(Time: 10 minutes)

Differentiating in this lesson based on Bloom’s Taxonomy:

Some students are given planner sheets to write their answer, with written instructions of what they will need to do for each paragraph, or for each part of the two paragraphs. The planner sheets will be graphic organizers designed to facilitate the student’s understanding of the different tasks by providing reminders of how to structure each part of their answer.

Each student is asked to write a draft answer and then a final answer. Both answers are to be turned in and there should be evidence of revision on the final answer. For students who were given the planner sheet, they may use this as their first draft.

Danielson Competency 3c: The activities and assignments are the center of this lesson. The students will compose their own list in a small group as the first activity that gets them thinking creatively about the topic. After that, they will compare their own list to a standard one, which serves as a compare and contrast matching game, second activity. The individual work is the implementation of one method for conserving water at home, and then the writing assignment.

Students will be grouped in such a way that the more advanced students are spread around into different groups. These students will help the group stay on task as well as help facilitate the discussions about ways of conserving water.

The teacher goal is to keep students engaged and intellectually active during this lesson. One method for accomplishing this will be to have the students work in a group to come up with their own list of ways to save water based on the circumstances provided by the teacher. Students will then work with their group to compare and contrast their list with a standard list, as a form of a matching activity. They will then do individual work in determining which methods they would like to practice and explain and why and how these methods help conserve water. Having this individual part of the lesson be student choice work will also help maintain the engagement and interest of the students, as they will be writing about a method that they have elected to try on their own and would like to practice more in the future.

Rubric

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| Skill | 4 | 3 | 2 | 1 |
| Content | Ideas show that the student understood the main focus of the assignment, and was able to explain why this practice (s) is helpful for conserving water. | Writing shows that the student understood the main idea of the assignment, but did not clearly explain what he or she did, or else was only able to explain one of the practices. | Writing shows that the student understood the idea of water conservation, but was not able to explain one way that he or she can use to practice this. | Writing shows that the student did not understand water conservation, and the student does not supply a way for helping to save water. |
| Organization | The response is two paragraphs long, each focusing on a different practice (what the student did and then why it is important, or else two different practices and importance.) | The response is two paragraphs long, but is mostly about just one practice, or else the student does focus on one practice that he or she tried, but does not supply results. | The response does not keep the events in the correct order of which they happened and is somewhat unclear. | The response is often unclear and shows that the student misunderstood the practice and why it can be an effective way of conserving water. |
| Sentence  Fluency | Sentences are smooth, rhythmic, and especially suited to the written explanation. | The sentences work for the most part. They are effective without always being suited to the assignment. | Sentences sometimes are repetitive, choppy, or unsuited to the assignment. | Sentences are so choppy or lengthy that they are hard to read and don’t reflect the ideas of conservation. |
| Conventions | The conventions of the paper are correct and used to add meaning to the response. | The conventions are mostly correct, but there are some occasional errors. | Some incorrect conventions occasionally interfere with the reading of the response. | The conventions often interfere with the reading of the response and make it confusing. |
| Revision | The revised response shows the student’s clear understanding of water conservation. | The revised response shows that the student understands and has practiced revision. | The response shows inconsistent understanding of revision. | The response shows little or no understanding of revision concepts. |